EMERGENCY ACTION PLAN

LITTLE SLEEPING CHILD CREEK DAM

Meadow Lake Homeowners Association
P.O. Box 1062
Hamilton, Montana 59840

~~Lori Silcher~~
~~KB FARMS~~
~~1560 Little Sleeping Child Road~~
~~Hamilton, Montana 59840~~

Wayne Kelly
3420 Whisky Jack Lane
Hamilton MT 59840
(406) 381-3590

~~Marge Lindquist~~
~~916 Hub Lane~~
~~Hamilton, Montana 59840~~

JEFF Reynolds
(406) 360-9822

Sept. 2005

Revised: April 19 2008

If Little Sleeping Child Creek is failing or failure seems imminent, call:

Ravalli County Sheriff .....363-3033 or 911

Ravalli County DES
Coordinator.....375-6233

TABLE OF CONTENTS

I. INTRODUCTION

A. Purpose

The purpose of this emergency action plan (EAP) is primarily to safeguard lives and secondarily to reduce property damage to the citizens of Ravalli County living near the town of Hamilton, and along the Little Sleeping Child Creek and Sleeping Child Creek, in the event of flooding caused by a failure of Little Sleeping Child Creek Dam.

B. Description of Dam

Little Sleeping Child Creek is in Ravalli County, in the South East Quarter of the South East Quarter of Section 8 of Township 4 North, Range 20 West and located on Little Sleeping Child Creek, a tributary of The Bitterroot River and is used for irrigation, stock watering and recreation purposes. Technical data pertaining to Little Sleeping Child Creek Dam and its structures are shown in Appendix A.

C. Access to Dam

Little Sleeping Child Creek Dam is located off of Little Sleeping Child Road, about three miles south of Sleeping Child Road. *{ Note that the access road may become flooded!}* The nearest telephone is at the home of John Maline (363-6376), about 1/2 mile downstream of the dam, on Little Sleeping Child Road. John Maline or Jane & Dan Shoemaker (363-0200) will check the dam's spillway and notify Sheriff's dispatch whenever over 1 inch of rain is measured in the rain gauge near his house.

D. Hazard Area

The evacuation area extends along Little Sleeping Child Creek and the Sleeping Child Creek, to a point where it joins the Bitterroot River as shown in Appendix B. Hazards include the possible inundation of occupied dwellings. Inundation and evacuation maps are in Appendix B.

E. Responsibility and Authority

Pursuant to the Dam Safety Act, Chapter 15 of Title 85, MCA, the dam owner is responsible for production, coordination, maintenance, and implementation of this emergency action plan. The extent of owner implementation was defined through coordination of this plan with the County Sheriff and Disaster and Emergency Services (DES) coordinator.

F. Periodic Review/Update

The owner shall review/update this EAP annually. Review/update by a qualified professional engineer will be accomplished as required by the dam's operating permit, but no less than every five years.

G. Approval

By my signature, I acknowledge that I, or my representative, have reviewed this plan and agree to the tasks and responsibilities assigned herein for my department and/or agency.

Bonnie Bruggemann Signature Jan 18 2006 Date

Meadow Lake Estates, Owner

Board member

G. Approval

By my signature, I acknowledge that I, or my representative, have reviewed this plan and agree to the tasks and responsibilities assigned herein for my department and/or agency.

Lori D. Silcher Signature 12-5-05 Date

Lori Silcher, Owner

G. Approval

By my signature, I acknowledge that I, or my representative, have reviewed this plan and agree to the tasks and responsibilities assigned herein for my department and/or agency.

Margie Lindquist Signature 1-16-06 Date

Marge Lindquist, Owner

G. Approval

By my signature, I acknowledge that I, or my representative, have reviewed this plan and agree to the tasks and responsibilities assigned herein for my department and/or agency.

Sheriff Signature 1-20-06 Date

RAVALLI COUNTY SHERIFF'S DEPARTMENT

G. Approval

By my signature, I acknowledge that I, or my representative, have reviewed this plan and agree to the tasks and responsibilities assigned herein for my department and/or agency.

Ron Nicholas Signature 1/23/06 Date

DISASTER AND EMERGENCY SERVICES

II. NOTIFICATION PROCEDURES

A. Imminent or Actual Failure

IF LITTLE SLEEPING CHILD CREEK DAM IS FAILING, TWO THINGS MUST BE DONE IMMEDIATELY:

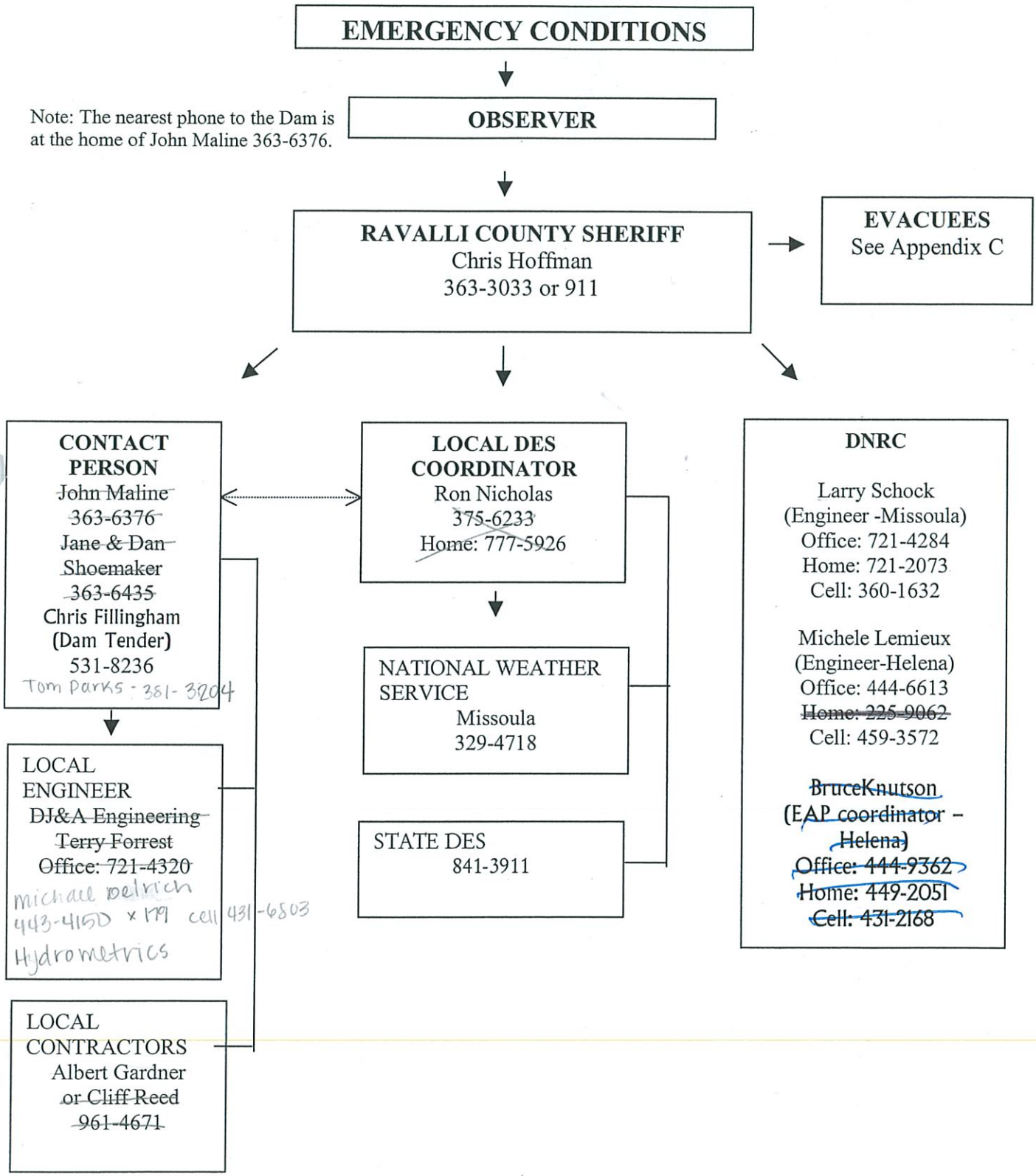
(1) Residents in the hazard area downstream from the dam must be warned according to the county warning plan, and initiated as shown in Figure 1, and

(2) Any steps that might save the dam or reduce damage to the dam or hazard area downstream should be taken. (Refer to the map in Appendix B to determine the areas that are likely to be inundated if the dam fails).

As dam owner, it is your responsibility to:

1. Call the Sheriff's Dispatch Center 363-3033 or 911 and Disaster and Emergency Services (375-6233), if they have not already been notified. Be sure to say, "This is an emergency." They will call other authorities and the media and begin the warning plan.
2. Warn anyone in immediate danger to evacuate to safety. This includes someone on the dam, directly below the dam, or boating on the reservoir, or downstream evacuees, if so directed by the sheriff.
3. Contact the Disaster and Emergency Services staff at least once every hour. They may request your assistance in evacuating residents.
4. If all means of communication are lost:
   a. Try to find out why
   b. Get someone else to try to reestablish communications. If these means fail, take care of immediate problems and send someone to get to another radio or telephone that works.

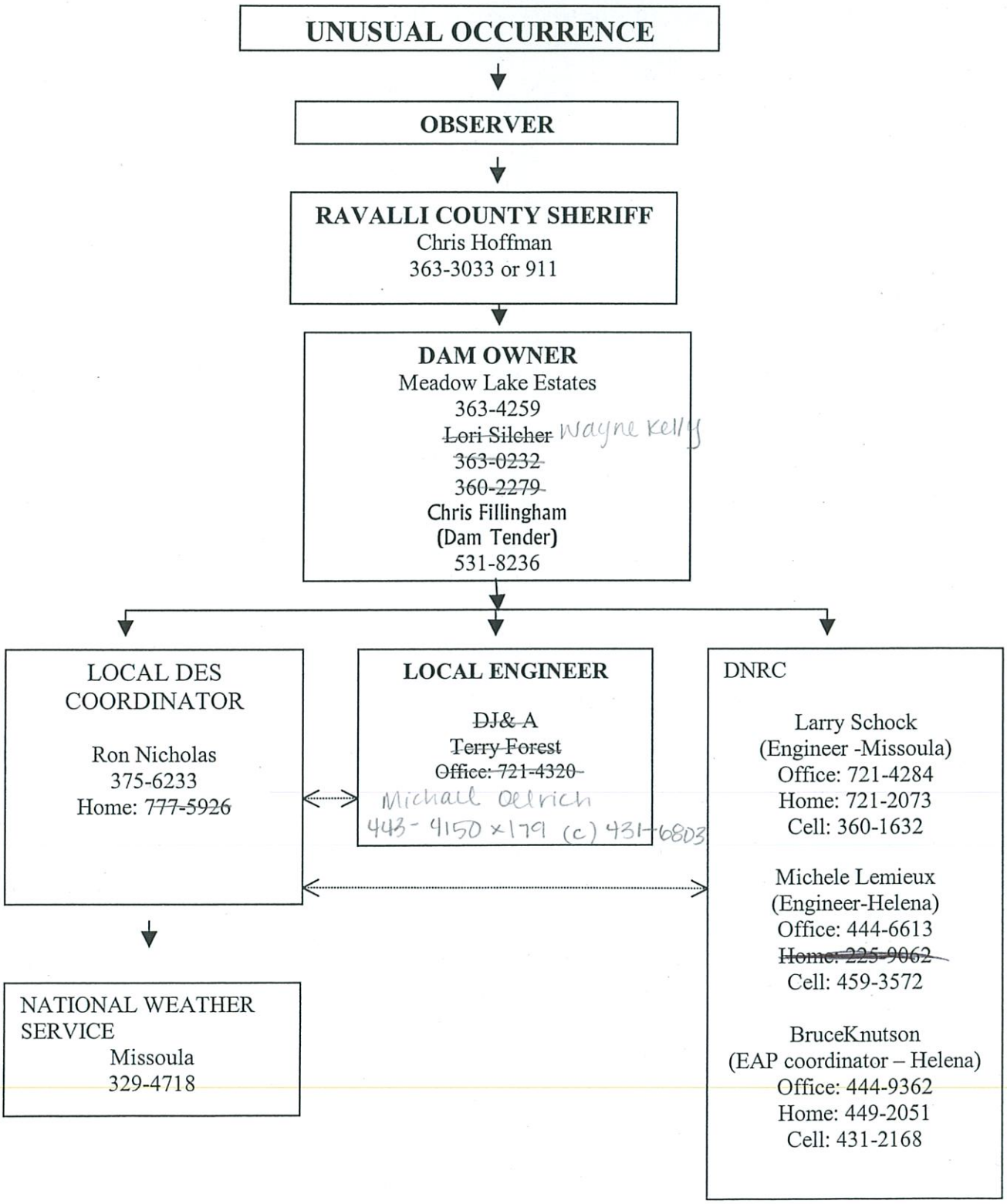
FIGURE 1
LITTLE SLEEPING CHILD CREEK DAM
ACTUAL OR IMMINENT FAILURE
"NOTIFICATION FLOW CHART"



B. Potentially Hazardous Situation

A potentially hazardous situation is an event or condition not normally encountered in the routine operation of the dam and reservoir. Among the unusual occurrences that may affect the dam are dam embankment problems (see section B.2.), failure of the spillway or outlet works, heavy precipitation or rapid spring snow melt, landslides, earthquakes, erosion, theft, vandalism, acts of sabotage, and serious accidents. These occurrences may endanger the dam, the public, or the downstream valley and may necessitate a temporary or permanent revision of the dam's operating procedures. Help in these situations can be obtained by notifying those people shown in Figure 2.

FIGURE 2
LITTLE SLEEPING CHILD CREEK DAM
POTENTIALLY HAZARDOUS SITUATION
"NOTIFICATION FLOW CHART"



1. If the dam owner discovers an unusual condition of the dam embankment that could threaten the structure:

   a. Have a qualified engineer inspect the dam as soon as possible to determine whether emergency action is necessary.
   b. Notify the county Disaster and Emergency Services Coordinator (375-6233) of the potential problem.
   c. Contact the Dam Safety Program (444-6613) of the Department of Natural Resources and Conservation (DNRC).

2. Among the conditions the dam owner should watch for are:
   a. Overtopping of the dam by flood waters.
   b. Loss of material from the dam crest due to storm wave erosion.
   c. Slides on either the upstream or downstream slope of the embankment as evidenced by
      1. Sloughing
      2. Cracking
      3. Bulging
      4. Scarping
   d. Erosional flows through, beneath, or around the embankment as evidenced by
      1. Excessive seepage
      2. Discoloration of the seepage
      3. Boils on the downstream side
      4. Sinkholes
      5. Changes in the flow from drains
   e. Failure of outlets or spillways due to clogging or erosion.
   f. Movement of the dam on its foundation as evidenced by
      1. Misalignment
      2. Settlement
      3. Cracking

3. Before calling either an engineer or DNRC to report a problem, the dam owner shall use the form in Appendix D to ensure sufficient information is provided for the engineer to analyze the problems. After talking to the engineer, it may be helpful to document the condition of the dam by making a sketch on the form in Appendix D, showing the extent of the problem. Revise the sketch periodically if the problem develops further. Section III includes further guidelines for courses of action to take mitigate the effect of many problems.

C. Posting of the Notification Flowchart and Distribution of the EAP.
The Notification Flowchart is posted at the dam and a copy of the EAP is at the locked gate. A plan distribution list is found in Appendix E.

III. MITIGATION ACTIONS

Besides normal monitoring of the dam's condition, which is done at least monthly, the owner will provide continuous monitoring and inspection during and after extreme events such as storms and earthquakes. Information on the magnitude of an earthquake or storm can be obtained from the DNRC Dam Safety Program (444-6613). Actions are suggested below to mitigate problems that may develop, but those actions should never be continued at the risk of injury or at the expense of lessening efforts related to evacuation. Monitoring should identify any of the following potential problems.

A. Potential Problems and Immediate Response Actions

1. OVERTOPPING BY FLOOD WATERS
   a. Open outlet to its maximum safe capacity.
   b. Place sandbags along the crest to increase freeboard and force more water through the spillway and outlet.
   c. Provide erosion-resistant protection to the downstream slope by placing plastic sheets or other materials over eroding areas.
   d. Divert flood waters around the reservoir basin, if possible.
   e. Create additional spillway capacity by making a controlled breach in a low embankment or dike section where the foundation materials are erosion-resistant.

2. LOSS OF FREEBOARD OR DAM CROSS SECTION DUE TO STORM WAVE EROSION
   a. Place additional riprap or sandbags in damaged areas to prevent further embankment erosion.
   b. Lower the water level to an elevation below the damaged area.

3. SLIDES IN THE UPSTREAM OR DOWNSTREAM SLOPE OF THE EMBANKMENT
   a. Lower the water level at a rate and to an elevation considered safe, given the slope condition. If the outlet is damaged or blocked, pumping, siphoning, or a controlled breach may be required.
   b. Stabilize slides on the downstream slope by
      1. Weighting the toe area with additional soil, rock, or gravel, and then
      2. Restoring lost freeboard by placing sandbags at the crest.

4. EROSIONAL FLOWS THROUGH THE EMBANKMENT, FOUNDATION, OR ABUTMENTS
   a. Plug the flow with whatever material is available (hay bales, bentonite, or plastic sheeting if the entrance to the leak is in the reservoir basin).
   b. Lower the water level until the flow decreases to a non-erosive velocity or stops.
   c. Place a protective sand-and-gravel filter or boil ring over the exit area to hold materials in place.

5. FAILURE OF APPURTENANT STRUCTURES SUCH AS OUTLETS OR SPILLWAYS
   a. Implement temporary measures to protect the damaged structure, such as closing an outlet or protecting a damaged spillway with riprap.
   b. Lower the water level to a safe elevation. If the outlet is inoperable, pumping, siphoning, or a controlled breach may be required.

6. MASS MOVEMENT OF THE DAM ON ITS FOUNDATION (SPREADING OR MASS SLIDING FAILURE)
   a. Immediately lower the water level until excessive movement stops.

7. EXCESSIVE SEEPAGE AND HIGH LEVEL SATURATION OF THE EMBANKMENT
   a. Lower the water to a safe level.
   b. Continue frequent monitoring for signs of slides, cracking or concentrated seepage.

8. SPILLWAY BACKCUTTING, THREATENING RESERVOIR EVACUATION
   a. Reduce the flow over the spillway by fully opening the main outlet.
   b. Provide temporary protection at the point of erosion by placing sandbags, riprap materials, or plastic sheets weighted with sandbags.
   c. When the inflow subsides, lower the water to a safe level.

9. EXCESSIVE SETTLEMENT OF THE EMBANKMENT
   a. Lower the water level by releasing it through the outlet pumping, siphoning, or a controlled breach.
   b. If necessary, restore freeboard, preferably by placing sandbags.

B. Emergency Supplies and Resources

Rock and gravel are available at Jim Plattenberg's Quarry – 4 Miles away. 2 miles north, then 2 miles east on Sleeping Child Road. (363-2133)

C. Local Contractors and Engineers

Local Contractors:

Kirby Excavators, 363-5014
Stewart Excavating, 961-4059
Cliff Reed, 961-4671

~~Engineer:~~

DJ&A
~~Terry Forest~~
~~721-4320~~

APPENDICES

APPENDIX A
Technical Data For Little Sleeping Child Creek Dam

Max Reservoir Capacity to the Crest of the Dam: ..... 73 acre feet

Normal Reservoir Capacity Measured to the Emergency Spillway Crest: ..... 59 acre feet

Normal Water Depth Measured from the Streambed to Crest of the Emergency Spillway ... 33 feet

Dam Height Measured From Streambed to Crest of the Dam: ..... 34.5 feet

Dam Crest Width: ..... 12 feet

Dam Width at Base: ..... 145 feet

Length of Dam Crest: ..... 350 feet

Outlet Capacity: ..... 10 cubic feet per second

Principal Spillway Capacity ..... 140 cubic feet per second

Emergency Spillway Capacity ..... 650 cubic feet per second

Date Constructed ..... 1927, enlarged 1947

Slope of Upstream Face of Dam (Horizontal to Vertical)
..... 2.5:1

Slope of Downstream Face of Dam (Horizontal to Vertical)
..... 2:1

APPENDIX B
Inundation & Evacuation Maps

APPENDIX C
Telephone Directory

A. Priority One

1. Ravalli County Sheriff

Chris Hoffman.....363-3033 or 911

2. Ravalli County DISASTER AND EMERGENCY SERVICES,

Ron Nicholas .....Office: 375-6233
.....Home: ~~777-5926~~

State Disaster and Emergency Services (Helena)
..... 841-3911

3. EVACUEES (in upstream-to-downstream sequence)

A. ~~Bob Comeau~~ Mike Lucey	~~no phone~~ (415) 986-5900
B. John Maline	363-6376
C. Chris Fillingham	531-8236
D. Dan & Jane Shoemaker	363-6435
E. Bobbie Heck	363-3578
F. Xavier Pastor & Maribel Lope	no phone
G. James & Sandra Mockerman	363-6435
H. Bonnie & Clint Bruggermann	363-4259
I. Doug & Jennifer Titus	no phone
J. Ken and Cheryl Puccio	544-7785
L. June Jones	363-0233
M. Jim Fuchs	363-1018
N. Vacant, Rental Owned by Silchers	
P. John & Debby Tucken	363-6692

B. Priority Two

4. LOCAL ENGINEERS

DJ&A
Terry Forest ..... Office: 721-4320
.....

5. MONTANA DEPT. OF NATURAL RESOURCES AND CONSERVATION

Mr. Larry Schock, Engineer, Missoula office ..... Office: 721-4284
..... Cell: 360-1632, Home: 721-2073

Michele Lemieux, Engineer, Dam Safety Program ..... Office: 444-6613
..... Cell: 459-3572, Home: 225-9062

Mr. Laurence Siroky, Bureau Chief ..... Office: 444-6816
..... Cell: 431-7475, Home: 442-2806

~~Mr. Bruce Knutson, Emergency Action Plan Coordinator Office: 444-9362~~
~~..... Cell: 431-2168, Home: 449-2051~~

6. NATIONAL WEATHER SERVICE

Missoula 329-4718

Great Falls 453-9642

Billings 652-23147

BUREAU OF LAND MANAGEMENT 657-6561

8. U.S. FOREST SERVICE 329-3176

APPENDIX D
Dam Incident Report Form

DATE: TIME:

NAME OF DAM:

STREAM NAME:

LOCATION:

COUNTY:

OBSERVER:

OBSERVER TELEPHONE:

NATURE OF PROBLEM:

LOCATION OF PROBLEM AREA (Looking Downstream):

EXTENT OF PROBLEM AREA:

FLOW QUANTITY AND COLOR:

WATER LEVEL IN RESERVOIR:

IS SITUATION WORSENING?

EMERGENCY STATUS:

CURRENT WEATHER CONDITIONS

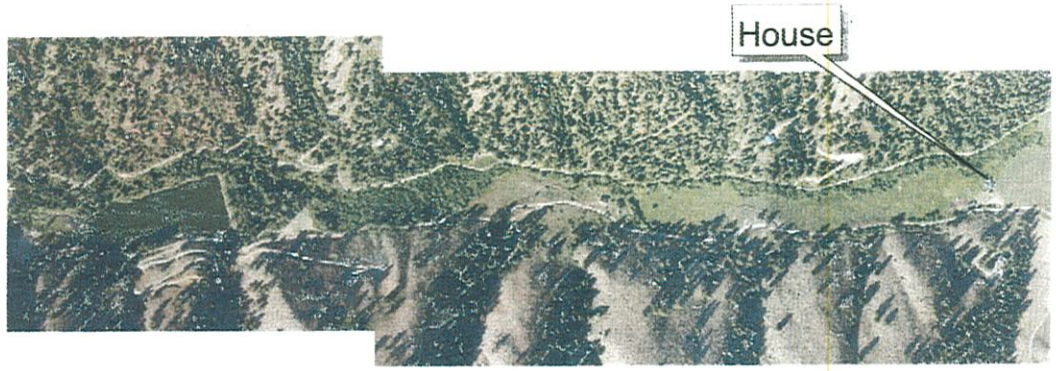
ADDITIONAL COMMENTS:

APPENDIX E
Emergency Action Plan Distribution List

PLAN HOLDER	NUMBER OF COPIES
John Maline,	1
Jane and Dan Shoemaker	1
Lori Silcher	1
Chris Fillingham (Dam Tender)	1
Meadow Lake Estates	1
Marge Lindquist	1
Ravalli County Sheriff	1
Ravalli County DES Coordinator	1
DNRC Dam Safety Program	1
DNRC Missoula Regional Office	1
National Weather Service	1

Index of Aerial Photos

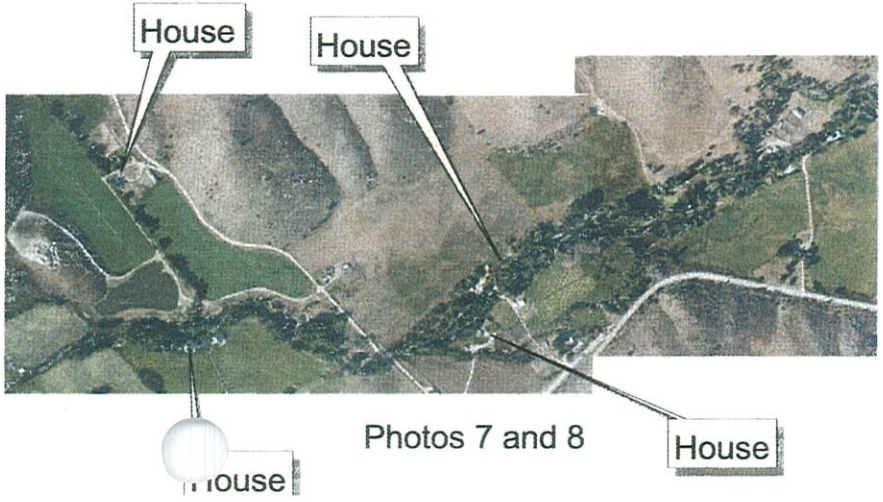
Little Sleeping
Child E.A.P.



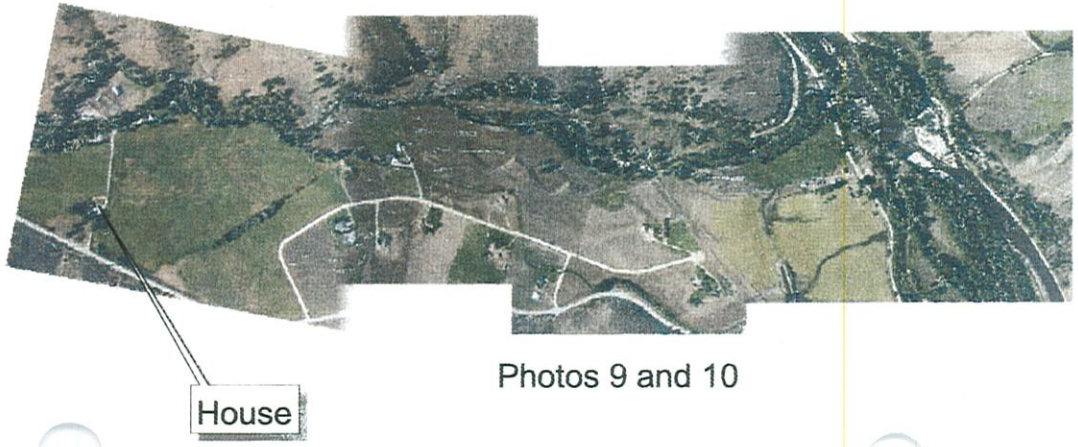
Photos 1 and 2

Photos 3 and 4

Photos 5 and 6



Photos 7 and 8

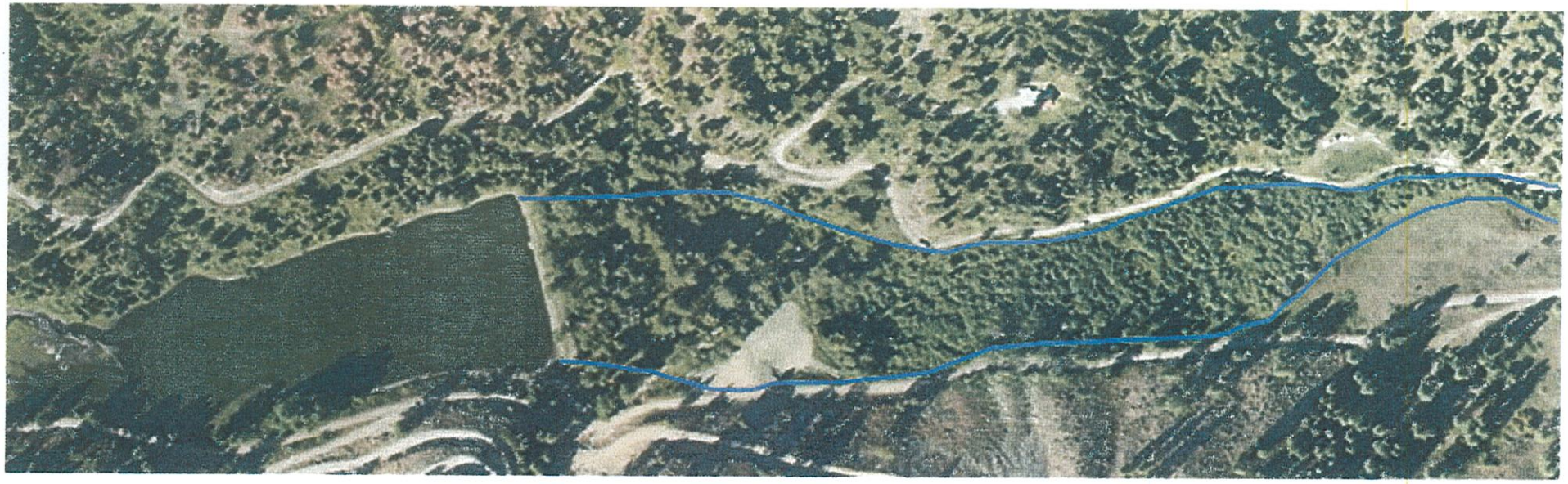


Photos 9 and 10

Little Sleeping Child Dam Evacuation Photos

Key

Inundation Area



W S N E

Photo 1 of 10

*** Inundation lines are estimates. Evacuations should be made well beyond this zone.**

Approximate Scale: Photo = 1/2 mile

Inundation lines verified by date

Little Sleeping Child Dam Evacuation Photos

Key

Inundation Area

Edge of Previous Photo

W S N E

*** Inundation lines are estimates. Evacuations should be made well beyond this zone.**

Photo 2 of 10

Approximate Scale: Photo = 1/2 mile

Inundation lines verified by date

Little Sleeping Child Dam Evacuation Photos

Key

Inundation Area

Edge of Previous Photo

Photo 3 of 10

*** Inundation lines are estimates. Evacuations should be made well beyond this zone.**

Approximate Scale: Photo = 1/2 mile

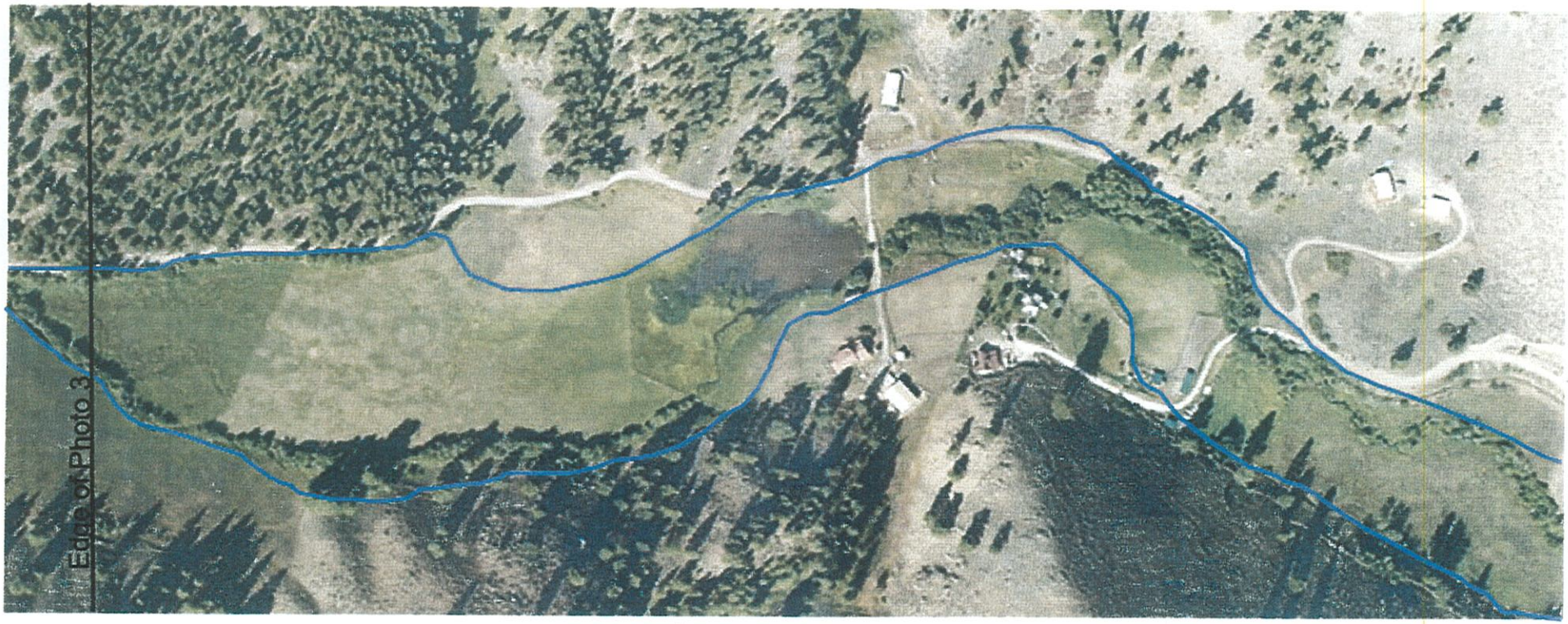
Inundation lines verified by **date**

Little Sleeping Child Dam Evacuation Photos

Key

Inundation Area

Edge of Previous Photo



W S N E

Photo 4 of 10

*** Inundation lines are estimates. Evacuations should be made well beyond this zone.**

Approximate Scale: Photo = 1/2 mile

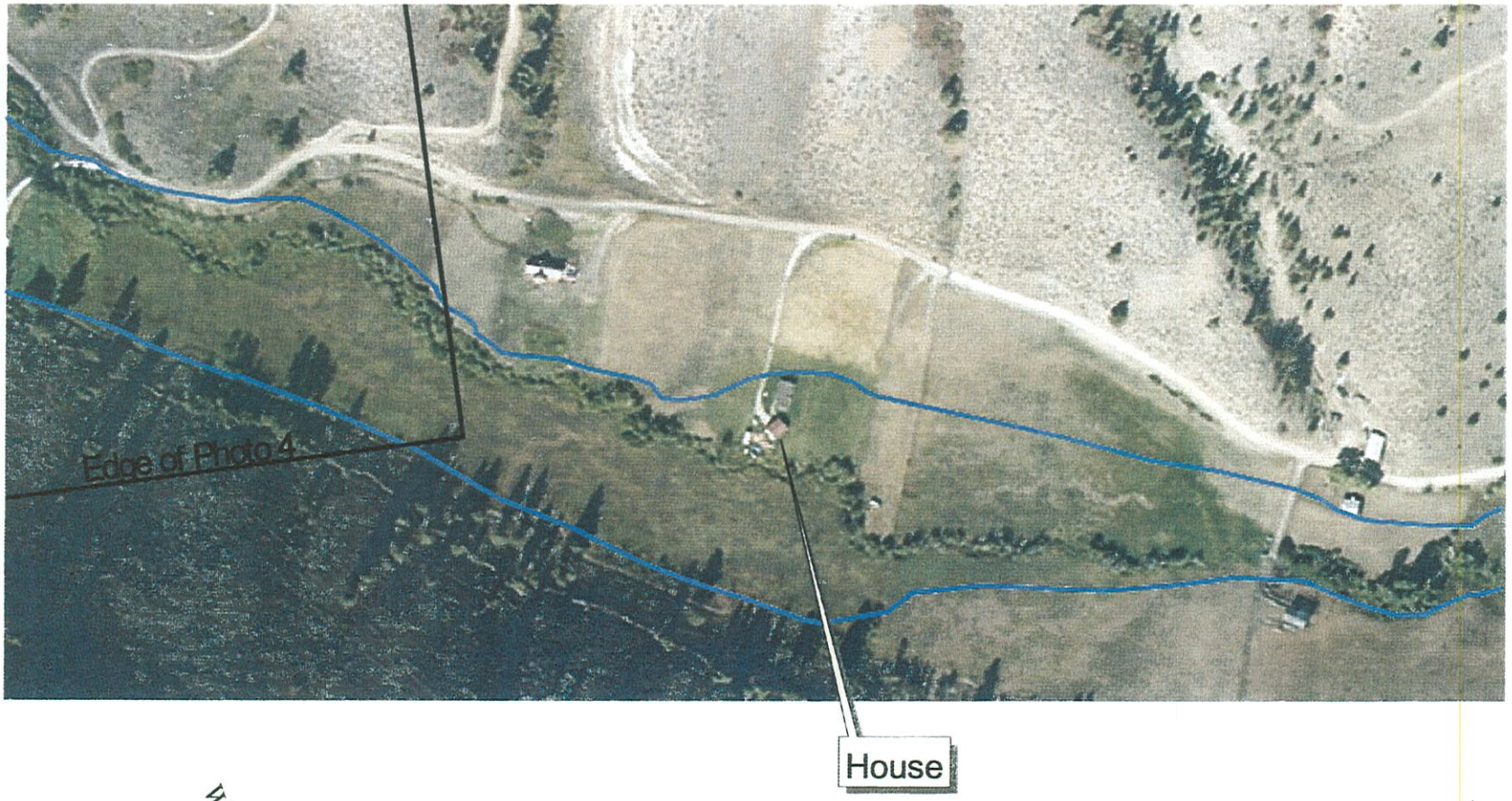
Inundation lines verified by **date**

Little Sleeping Child Dam Evacuation Photos

Key

Inundation Area

Edge of Previous Photo



*** Inundation lines are estimates. Evacuations should be made well beyond this zone.**

Photo 5 of 10

Approximate Scale: Photo = 1/2 mile

Inundation lines verified by **date**

Little Sleeping Child Dam Evacuation Photos

Key

Inundation Area

Edge of Previous Photo

W S N E

Approximate Scale: Photo = 1/2 mile

Photo 6 of 10

*** Inundation lines are estimates. Evacuations should be made well beyond this zone.**

Inundation lines verified by date

Little Sleeping Child Dam Evacuation Photos

Key

Inundation Area

Edge of Previous Photo

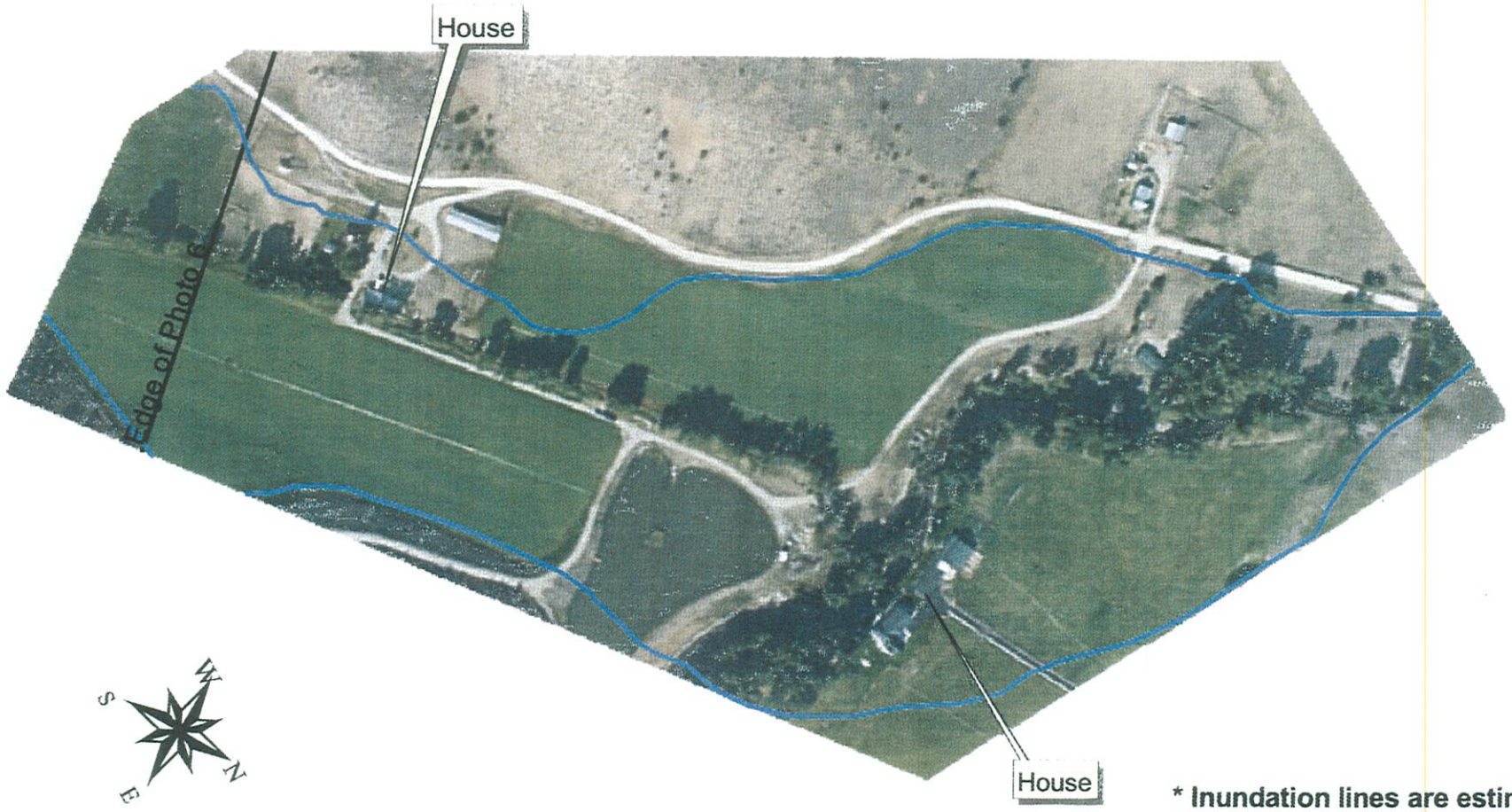


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Photo 7 of 10

Approximate Scale: Photo = 1/2 mile

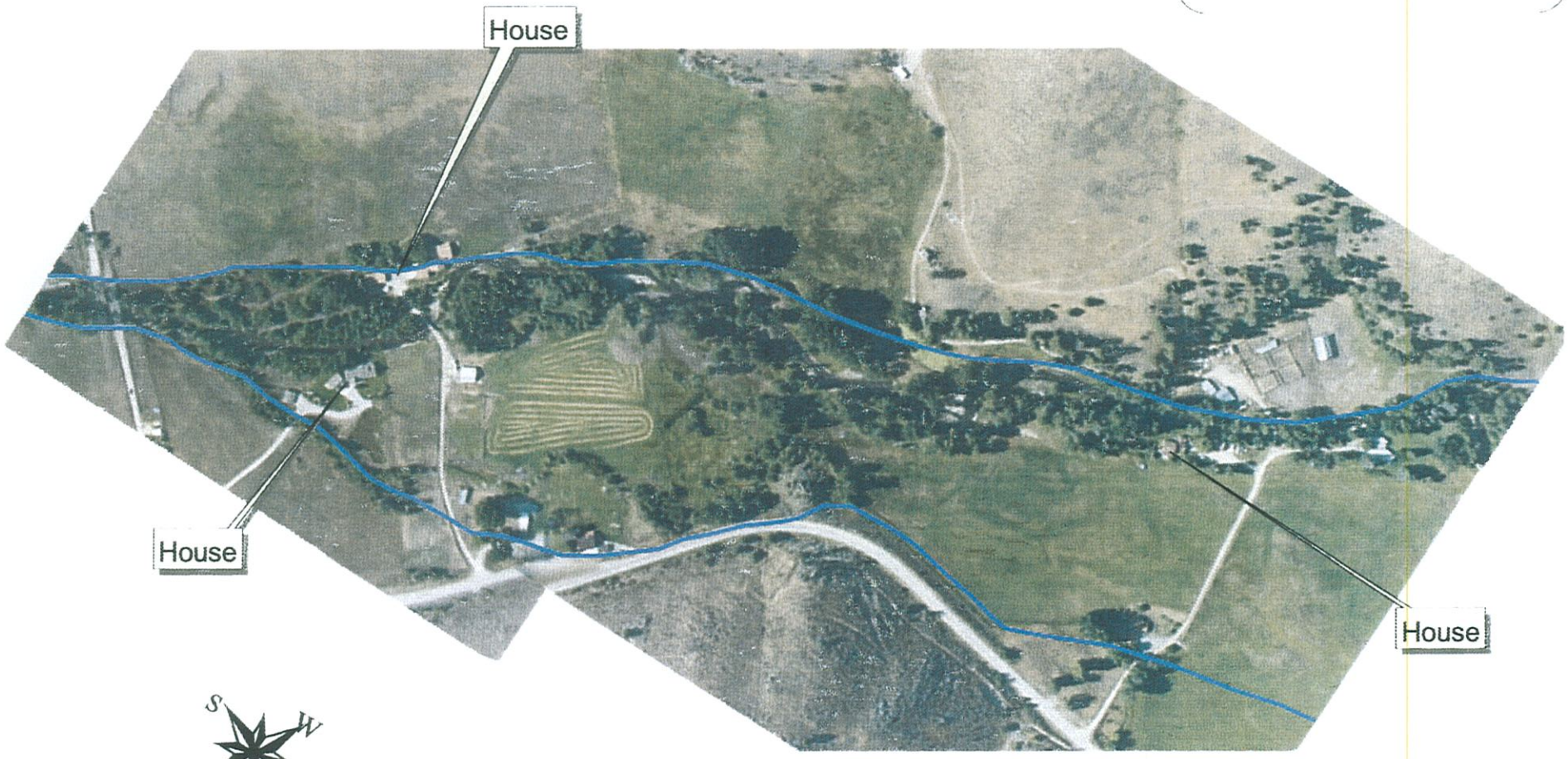
Inundation lines verified by date

Little Sleeping Child Dam Evacuation Photos

Key

Inundation Area

Edge of Previous Photo



*** Inundation lines are estimates. Evacuations should be made well beyond this zone.**

Photo 8 of 10

Approximate Scale: Photo = 1/2 mile

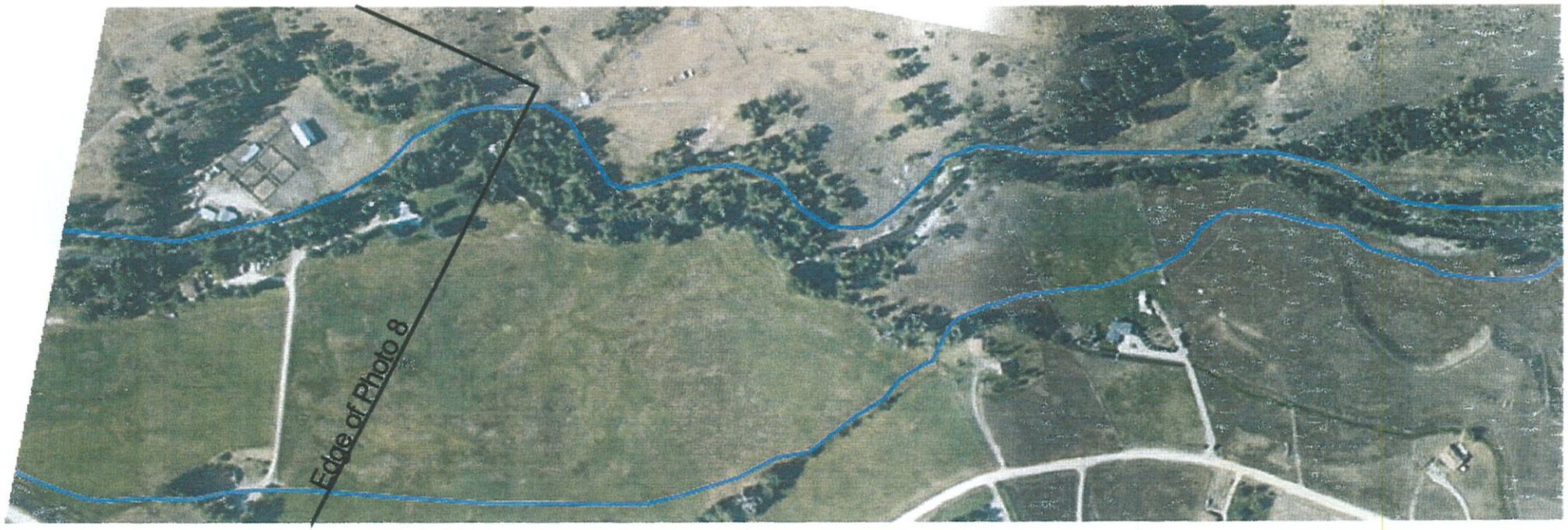
Inundation lines verified by date

Little Sleeping Child Dam Evacuation Photos

Key

Inundation Area

Edge of Previous Photo



S W E N

*** Inundation lines are estimates. Evacuations should be made well beyond this zone.**

Photo 9 of 10

Approximate Scale: Photo = 1/2 mile

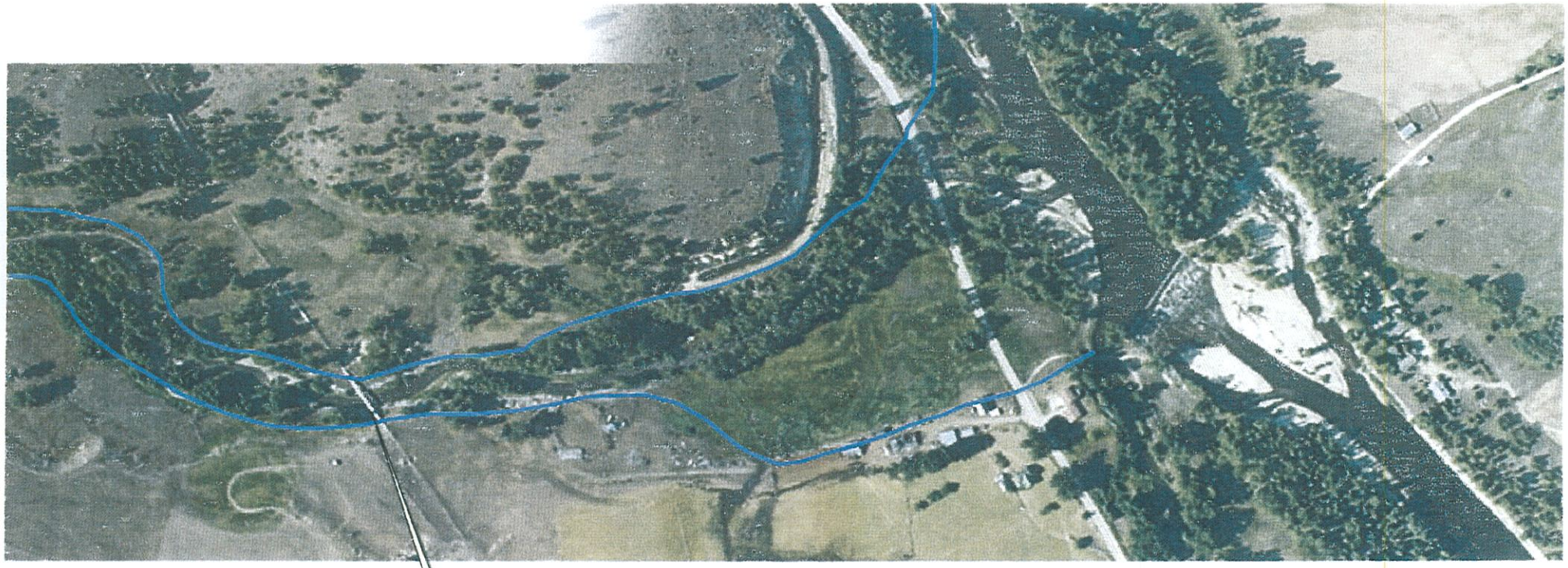
Inundation lines verified by date

Little Sleeping Child Dam Evacuation Photos

Key

Inundation Area

Edge of Previous Photo



S W E N

Photo 10 of 10

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